

Patent claims

1. Connector (100) for a sealed connection of a flat cable arrangement, comprising:
- 5 an external housing (101), which has an insertion opening (103) for the insertion of the flat cable arrangement (200),
- at least one sealing element comprising compressed gel (107, 108, 107', 108', 107'', 108''), which at a connection
- 10 area of the insertion opening (103) for the flat cable arrangement being so arranged that it only comes into effective contact with flat cable arrangement (200) when the flat cable arrangement (200) is in an inserted condition, and
- 15 a device (110, 107a, 108a, 107b, 108b, 120, 121, 122, 130, 120) for the pressurization of the at least one sealing element (107, 108, 107', 108', 107'', 108'') for sealing at least the connection area of the flat cable arrangement in inserted condition.
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2. Connector according to the preceding claim, in addition characterized in sealing elements (107, 108, 107', 108', 107'', 108'') that can be arranged at the connecting point on both side of the flat cable arrangement, of which at least
- 25 one comprises compressed gel.
3. Connector according to at least one of the preceding claims, in addition characterized in that the flat cable arrangement comprises a flex foil, a flat ribbon cable, a
- 30 flexible printed circuit, an extruded cable or a laminated cable.

4. Connector according to at least one of the preceding claims, in addition characterized by, terminal contacts and/or terminal position assurance means (140) arranged at the connection area of the connector for interacting with terminals (201) attached to the conductor ends of the flat cable arrangement.

5. Connector according to at least one of the preceding claims, in addition characterized by the gel being a silicon gel or an elastomer based on gel.

6. Connector according to at least one of the preceding claims, in addition characterized by the gel being a dielectric.

7. Connector according to at least one of the preceding claims, in addition characterized in that the at least one sealing element and the pressurization device interacting with said sealing element being capable of moving between a position which essentially completely opens the insertion opening to the connecting point and a position essentially closing the insertion opening.

8. Connector according to the preceding claim, characterized by catching or snapping means associated to the pressurization device at least for the fixation of the pressurization device in the position essentially closing the insertion opening.

9. Connector according to at least one of the preceding claims, in addition characterized by a pressurization device, with which two sealing elements can be moved in a pincer-like movement in direction of the upper and lower side of the flat cable arrangement into a position

essentially closing the insertion opening and can be pressurized.

10. Connector according to the preceding claim, in addition
5 characterized by guidance devices (106) that extend at the side of insertion opening in the insertion direction of the flat cable arrangement diagonally from above and below the flat cable arrangement in direction to the flat cable arrangement for the simultaneous guidance of the
10 pressurization device in a normal direction in relation to the flat cable device as well as in an axial direction in relation to the flat cable arrangement.

11. Connector according to at least one of the preceding
15 claims 1 to 8, in addition characterized by a pressurization device (130) with guidance and catching devices assigned to it to guide the pressurization device, first in a normal direction in relation to the flat cable arrangement at the connecting point and then in an axial
20 direction in relation to the flat cable arrangement at the connecting point or vice versa.

12. Connector according to the preceding claim, in addition characterized in the flat cable arrangement in fully
25 assembled state projecting out of the connector housing in relation to the insertion direction of the flat cable arrangement at an angle, preferably in essence of 0° , $+90^\circ$ or -90° .

30 13. Connector according to at least one of the preceding claims 1 to 8, in addition characterized by sealing elements and a pressurization device (120) that can be inserted after the flat cable arrangement has been inserted in the insertion opening.

14. Connector according to the preceding claim, with the pressurization device in addition having a slot (123) essentially corresponding to the cross-section of the flat cable arrangement (200) and through which the flat cable arrangement (200) is guided.

15. Connector according to at least one of the preceding claims, in addition characterized in the pressurization device comprising a connector housing cover for closing the insertion opening.

16. Connector according to at least one of the preceding claims, characterized by a trough hole leading outwards through the connector housing at the point of at least one of sealing elements comprising compressed gel.

17. Connector according to at least one of the preceding claims, in addition comprising a jacket or plug connector end (102) for connecting a counter connector essentially opposite the insertion opening.

18. Connector system, comprising at least one connector (100) with a flat cable arrangement (200) connected to it, characterized by at least two pressurized sealing elements (107, 108, 107', 108', 107'', 108'') positioned at the connecting point in the connector (100) on each side of the flat cable arrangement (200), with at least one of the sealing elements being made out of compressed gel.

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19. Use of a compressed gel, in particular in the form of a pillow or cushion as a sealing element for a connector and/or a connector system according to one of the preceding claims.